

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. *(Canceled)*.

2. *(Currently Amended)*: An illumination apparatus for an optical instrument comprising: an illumination means for outputting illumination light; and

an optical element positioned on in the light a path of the illumination light outputted from the illumination means, the optical element comprising an organic/inorganic composite material, wherein the organic/inorganic composite material is made of an organic component and an inorganic component which are mixed in complex with each other[;], and with the organic component of the organic/inorganic composite material is a component having a glass-transition temperature higher than 150⁰C, wherein the organic/inorganic composite material is made of a copolymerized structure, in which a monomer or an oligomer formed of organic backbones and a monomer or oligomer having inorganic element are copolymerized.

3. *(Currently Amended)*: An illumination apparatus for an optical instrument comprising: an illumination means for outputting illumination light; and

an optical element positioned on in the light a path of the illumination light outputted from the illumination means, the optical element comprising an organic/inorganic composite material,

wherein the organic/inorganic composite material is made of an organic component and an inorganic component which are mixed in complex with each other[;], and the organic/inorganic composite material contains at least one of the components represented by the following formula (2),



General Formula (2)

(M¹ is at least one of metal elements which is selected from a group consisting of Al, Be, Ge, Hf, La, Mg, Sc, Ta, Ti, V, Y, Zn, and Zr, R⁴ is an alkyl group, an alkyl halide group, an aryl

group or an aryl halide group of which carbon number is between 1 and 6, and "n" is a positive integer as a valence of the metal element M¹), wherein the organic/inorganic composite material is made of a copolymerized structure, in which a monomer or an oligomer formed of organic backbones and a monomer or oligomer having inorganic element are copolymerized.

4. (*Currently Amended*): [[An]] The illumination apparatus for an optical instrument as claimed recited in claim 3, wherein the organic/inorganic composite material contains a component having a glass-transition temperature higher than 150C as its organic component and a component capable of transmitting lights light in a range including the visible wavelength range and the ultraviolet wavelength range as its inorganic component.

5. (*Cancelled*)

6. (*Currently Amended*): [[An]] The illumination apparatus for an optical instrument as claimed recited in claim 2, wherein the illumination apparatus for the optical instrument is an illumination apparatus for a microscope.

7. (*Currently Amended*): [[An]] The illumination apparatus for an optical instrument as claimed recited in claim 2, wherein the organic/inorganic composite material is made of at least one structure selected from the group of comprises:

- a. —— a composite structure having a curing agent that is cured by an ultraviolet ray, and in which inorganic nano-scale fine particles are dispersed in a polymer matrix formed of organic backbones; and
- b. —— a copolymerized structure, in which a monomer or an oligomer formed of organic backbones and a monomer or oligomer having inorganic element are copolymerized.

8. (*New*): An illumination apparatus for an optical instrument comprising:
an illumination means for outputting illumination light; and
an optical element positioned in a path of the illumination light outputted from the illumination means, the optical element comprising an organic/inorganic composite material,

wherein the organic/inorganic composite material is made of an organic component and an inorganic component which are mixed in complex with each other, and the organic/inorganic composite material contains at least one of the components represented by the following formula (2),



General Formula (2)

(M^1 is at least one of metal elements which is selected from a group consisting of Al, Be, Ge, Hf, La, Mg, Sc, Ta, Ti, V, Y, Zn, and Zr, R^4 is an alkyl group, an alkyl halide group, an aryl group or an aryl halide group of which carbon number is between 1 and 6, and “n” is a positive integer as a valence of the metal element M^1), wherein the organic/inorganic composite material comprises a composite structure having a curing agent that is cured by an ultraviolet ray, and in which inorganic nano-scale fine particles are dispersed in a polymer matrix formed of organic backbones.